

ITEM 5B - Country or geographical area

The country or geographical area in which the receiving station is located.

ITEM 5C - Geographical coordinates

The geographical coordinates (longitude and latitude in degrees and minutes) of the site of the receiving station.

ITEM 5D - Area of the receiving station(s)

The standard defined area of reception of the transmitting station.

ITEM 5E - Longitude and latitude of the centre of the circular receiving area

The geographical coordinates (in degrees and minutes).

ITEM 5F - Nominal radius of the circular receiving area

The radius (km) of the circular receiving area.

ITEM 6A - Class of station

The class of station described by a symbol.

ITEM 6B - Nature of service

The nature of service described by a symbol.

ITEM 6C - Experimental station

Symbol EX in this item for experimental station only.

ITEM 7A - Class of emission, necessary bandwidth and description of transmission

The class of emission, necessary bandwidth and description of transmission, in accordance with Article S2 and Appendix S1.

ITEM 7B - Class of operation of the assignment

The class of operation of an assignment.

ITEM 7C1 - Television system

A symbol corresponding to the television system.

ITEM 7C2 - Colour system

A symbol corresponding to the colour system.

ITEM 7D - Transmission system

A symbol corresponding to the transmission system for an assignment to a broadcasting station.

ITEM 8 - Power (dBW)

Symbol X, Y or Z describes as appropriate the type of power corresponding to the class of emission.

ITEM 8A - Power delivered to the antenna (dBW)

The power delivered to the antenna transmission line expressed in dBW.

ITEM 8B - Radiated power (dBW)

Indicate the radiated power expressed in dBW in one of the forms described in Nos. 155 - 157.

ITEM 8BH - Effective radiated power of the horizontal component in different azimuths

The effective radiated power of the horizontal component in different azimuths (in dBW) for an assignment to a broadcasting station.

ITEM 8BV - Effective radiated power of the vertical component in different azimuths

The effective radiated power of the vertical component in different azimuths (in dBW) for an assignment to a broadcasting station.

ITEM 8D - Power Ratio

Vision/sound carrier power ratio for VHF/UHF television broadcasting station.

ITEM 9A - Azimuth of maximum radiation

For a directive transmitting antenna, the azimuth of maximum radiation of the transmitting antenna in degrees (clockwise) from True North, or the symbol "ND" meaning non-directional.

ITEM 9AA - Central azimuth of augmentation

The central azimuth of the augmentation (centre of the span) in degrees for an assignment to a broadcasting station.

ITEM 9B - Elevation angle of maximum directivity

The angle of maximum directivity in degrees with one decimal position.

ITEM 9C - Angular width of radiation main lobe (Beamwidth)

The total angle measured horizontally in a plane containing the direction of maximum radiation, in degrees, within which the power radiated in any direction does not fall more than 3 dB below the power radiated in the direction of maximum radiation.

ITEM 9CA - Total span of augmentation

The total span of the augmentation in degrees for an assignment to a broadcasting station.

ITEM 9D - Polarization

Information on polarization.

ITEM 9E - Height of antenna

Information on height in metres.

ITEM 9F - Electrical height or maximum effective height of the antenna

The antenna (electrical) height in degrees or metres.

ITEM 9G - Maximum antenna gain (isotropic, relative to a short vertical antenna or relative to a half-wave dipole, as appropriate)

The maximum gain of the antenna in the direction of maximum radiation (see No. 154).

ITEM 9GH - Antenna gain for different azimuths in the horizontal plane

The antenna gain in the horizontal plane for different azimuths (in dB).

ITEM 9GV - Antenna gain for different azimuths in the vertical plane

The antenna gain in the vertical plane for different azimuths (in dB).

ITEM 9H - Azimuths defining the sectors of limited radiation in degrees (clockwise) from True North

The azimuth or azimuthal sectors of limited radiation in degrees (clockwise) from True North.

ITEM 9I - Maximum agreed radiation in the sectors

The maximum agreed radiation in the sector, in dB relative to a cymomotive force (c.m.f.) of 300 V or an effective monopole radiated power (e.m.r.p.) of 1 kW, determined from the nominal power of the transmitter and the theoretical gain of the antenna without allowing for miscellaneous losses.

ITEM 9IA - Radiation at central azimuth of augmentation

The value of the radiation at the central azimuth of the augmentation, expressed in mV/m at 1 km.

ITEM 9J - Reference antenna

A type of antenna described by symbols in standard references.

ITEM 9N - Attenuation in a sector (dB)

The value in dB of the attenuation in a defined sector.

ITEM 9NA - Augmentation number

The serial numbers of the augmentations as described in items 9IA, 9AA and 9CA.

ITEM 9NH - Attenuation (dB) in the horizontal plane at different azimuths

The value of attenuation with respect to maximum ERP in the horizontal plane at different azimuths in dB.

ITEM 9NV - Attenuation (dB) in the vertical plane at different azimuths

The value of the attenuation with respect to maximum ERP in the vertical plane at different azimuths in dB.

ITEM 9O - Type of pattern

The type of antenna radiation pattern, represented by a symbol.

ITEM 9P - Special quadrature factor

The value of the special quadrature factor, in mV/m at 1 km (to replace the normal expanded quadrature factor when special precautions are taken to ensure pattern stability).

ITEM 9Q - Type of antenna

Simple vertical antenna or directional antenna.

ITEM 9T1 - Tower number

The serial number of each of the towers whose characteristics are described in items 9T2 to 9T8.

ITEM 9T2 - Tower field ratio

The ratio of the tower field to the field of the reference tower.

ITEM 9T3 - Phase difference of the field

The positive or negative difference in the field from the tower with respect to the field from the reference tower in degrees.

ITEM 9T4 - Electrical tower spacing

The electrical spacing of the tower from the reference point in degrees.

ITEM 9T5 - Angular tower orientation

From True North, the angular orientation of the tower from the reference point in degrees.

ITEM 9T6 - Reference point indicator

The reference point.

ITEM 9T7 - Electrical height of tower

The electrical height of the tower under consideration in degrees.

ITEM 9T8 - Tower structure

A symbol corresponding to the tower structure.

ITEMS 9T9A to 9T9D - Description of top-loaded or sectionalized tower

The description of top-loaded or sectionalized towers, in degrees.

ITEM 10A - Maximum hours (UTC) of operation of the circuit to each locality or area

The maximum hours of operation in hours and minutes (UTC) or by symbols.

ITEM 10B - Regular hours (UTC) of operation of the frequency assignment

The regular hours of operation of the frequency assignment in UTC.

ITEM 10C - Seasons and solar activity

The season or month of the year and the degree of solar activity by appropriate symbols.

ITEM 10D - Estimated peak hours of traffic

For HF coast radiotelephone stations (see Article S10).

ITEM 10E - Estimated daily volume of traffic

For HF coast radiotelephone stations (see Article S10).

ITEM 10F - Duration of transmissions

For coast stations in the International NAVTEX system, the duration of transmission in hours and minutes.

ITEM 11 - Coordination with other administrations

Country or geographical area with which coordination is to be effected and the provision (No. of the Radio Regulations, regional agreement, or other arrangement) requiring such coordination.

ITEM 12A - Operating administration or company

Symbol for the operating agency.

ITEM 12B - Postal and telegraphic addresses of the administration responsible for the station

Symbol for the address of the administration responsible for the station and to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the circuit (see Article S15).

ANNEX 1B
(to Appendix S4)

Table of characteristics to be submitted for stations in the terrestrial services

| NOTICE TYPE | AP1/A1 | | | | | AP1/B | | AP1/C | AP1/A2 | AP1/A4 | | AP1/A5 | AP1/A6 | AP1/A7 | AP2 | AP6 | AP1/A1 | NOTICE TYPE |
|-------------|------------------|------------------------|--------|--------|----|------------------|--------------|-------------------|--------|--------|----|--------|--------|--------|-----|-----|------------------|-------------|
| ITEM NO. | AL, NL LR, OE | FC, FP FA, BC FB | FD, FG | FX, AX | SM | AM, ML MA, MO | MS, OD SA | all, except BC | BC | BC | BT | BC | BT | BC | BC | FC | FC (Art. 14A) | ITEM NO. |
| B | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | B |
| SYNC | | | | | | | | | X | | | | | X | | | | SYNC |
| 1A | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | X | 1A |
| 1B | + | + | + | + | + | + | + | + | | | X | | | | + | | | 1B |
| 1C | | | | + | | | | | | | | | | | X | + | | 1C |
| 1E | | | | | | | | | | | X | | X | | | | | 1E |
| 1G | | | | | | | | | | | | | | | O | | | 1G |
| 1H | | | | | | | | | | | | | | | X | | | 1H |
| 1X | | | | | | | | | | | | | | | | X | | 1X |
| 1Y | | | | | | | | | | | | | | | | O | | 1Y |
| 1Z | | | | | | | | | | | | | | | | + | | 1Z |
| 2C | X | X | X | X | X | X | X | X | X | X | X | X | X | X | + | X | X | 2C |
| 3A | X | X | X | X | X | | | | X | | | | | | X | | X | 3A |
| 4A | X | X | X | X | X | | | | X | X | X | X | X | X | X | + | X | 4A |
| 4B | X | X | X | X | X | | | X | X | X | X | X | X | X | X | X | X | 4B |
| 4C | X | X | X | X | X | | | | X | X | X | X | X | X | X | + | X | 4C |
| 4D | | | | | | .1) | .1) | .1) | | | | | | | | | | 4D |
| 4E | | | | | | . | . | . | | | | | | | | | | 4E |
| 4F | | | | | | . | . | . | | | | | | | | | | 4F |
| 4G | | | | | | | | | X | | | | | | | | | 4G |
| 5A | | | | X | | X | X | | | | | | | | | | | 5A |
| 5B | | | | X | | X | X | | | | | | | | | | | 5B |
| 5C | | | | X | | X | X | | | | | | | | | | . | 5C |
| 5D | | .2) | .2) | | | | | | | | | | | | X | *3) | . | 5D |
| 5E | X | . | . | | X | | | | | | | | | | | . | | 5E |
| 5F | X | . | . | | X | | | | | | | | | | | . | | 5F |

1) Either (4D and 4E) or 4F. 2) Either (5D) or (5E and 5F). 3) Either (5D and 5F) or (5E and 5F).

X - Mandatory

. - Either one or the other item(s)

+ - required in specific cases

O - optional

| NOTICE TYPE | AP1/A1 | | | | | AP1/B | | AP1/C | AP1/A2 | AP1/A4 | | AP1/A5 | AP1/A6 | AP1/A7 | AP2 | AP5 | AP1/A1 | NOTICE TYPE |
|-------------|---------------|------------------|--------|--------|----|---------------|------------|---------------|----------------|--------|----|--------|--------|--------|-----|-----|---------------|-------------|
| ITEM NO. | AL, NL LR, OE | FC, FP FA, FB BC | FD, FG | FX, AX | SM | AM, ML MA, MO | MS, OD, SA | all except BC | BC | BC | BT | BC | BT | BC | BC | FC | FC (Art. 14A) | ITEM NO. |
| 6A | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 6A |
| 6B | + | + | X | X | | X | X | + | | | | | | | | X | | 6B |
| 6C | + | + | + | + | + | | | | | | | | | | | | | 6C |
| 7A | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 7A |
| 7B | | | | X | | | | | X | | | | | X | | | | 7B |
| 7C1 | | | | | | | | | X ⁴ | | X | | X | | | | | 7C1 |
| 7C2 | | | | | | | | | | | X | | X | | | | | 7C2 |
| 7D | | | | | | | | | | | | X | | | | | | 7D |
| 8 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 8 |
| 8A | . | . | X | . | X | . | . | . | X | | | | | X | X | X | . | 8A |
| 8B | . | . | | . | | . | . | . | | X | X | X | X | | | | . | 8B |
| 8BH | | | | | | | | | | | | X | | | | | | 8BH |
| 8BV | | | | | | | | | | | | X | | | | | | 8BV |
| 8D | | | | | | | | | | | | | X | | | | | 8D |
| 9A | X | X | X | X | X | | | | X | X | X | X | X | | X | X | X | 9A |
| 9AA | | | | | | | | | | | | | | X | | | | 9AA |
| 9B | | | | + | | | | | | | | | | | X | | | 9B |
| 9C | + | + | + | + | + | | | | | | | | | | | + | | 9C |
| 9CA | | | | | | | | | | | | | | X | | | | 9CA |
| 9D | | | | + | | | | | | X | X | X | X | | | | | 9D |
| 9E | | | | + | | | | | X | X | X | X | X | | | | | 9E |
| 9F | | | | | | | | | | | | | | X | | | | 9F |
| 9G | + | + | + | + | + | | | + | | | | | | | + | + | | 9G |
| 9GH | | | | | | | | | X | | | | | | | | | 9GH |
| 9GV | | | | | | | | | X | | | | | | | | | 9GV |
| 9H | | | | | | | | | X | X | X | X | | + | | + | | 9H |

X - Mandatory

• - Either one or the other item(s)

+ - required in specific cases

O - optional

⁴ For low - power channels.
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| NOTICE TYPE | AP1/A1 | | | | | AP1/B | | AP1/C | AP1/A2 | AP1/A4 | | AP1/A5 | AP1/A6 | AP1/A7 | AP2 | AP5 | AP1/A1 | NOTICE TYPE |
|-------------|--------------|------------------|--------|--------|----|--------------|------------|----------------|--------|--------|----|--------|--------|--------|-----|-----|---------------|-------------|
| ITEM NO. | AL, NL LR OE | FC, FP FA BC, FB | FD, FG | FX, AX | SM | AM, ML MA MO | MS, OD, SA | all, except BC | BC | BC | BT | BC | BT | BC | BC | FC | FC (Art. 14A) | ITEM NO. |
| 9I | | | | | | | | | X | | | | | X | | | | 9I |
| 9IA | | | | | | | | | | | | | | X | | | | 9IA |
| 9J | | | | + | | | | | | | | | | | X | + | | 9J |
| 9N | | | | | | | | | | | | X | | | | | | 9N |
| 9NA | | | | | | | | | | | | | | X | | | | 9NA |
| 9NH | | | | | | | | | | | | | X | | | | | 9NH |
| 9NV | | | | | | | | | | | | | X | | | | | 9NV |
| 9O | | | | | | | | | | | | | | X | X | X | | 9O |
| 9P | | | | | | | | | | | | | | X | | | | 9P |
| 9Q | | | | | | | | | X | | | | | X | | | | 9Q |
| 9T1 | | | | | | | | | | | | | | X | | | | 9T1 |
| 9T2 | | | | | | | | | | | | | | X | | | | 9T2 |
| 9T3 | | | | | | | | | | | | | | X | | | | 9T3 |
| 9T4 | | | | | | | | | | | | | | X | | | | 9T4 |
| 9T5 | | | | | | | | | | | | | | X | | | | 9T5 |
| 9T6 | | | | | | | | | | | | | | X | | | | 9T6 |
| 9T7 | | | | | | | | | | | | | | X | | | | 9T7 |
| 9T8 | | | | | | | | | | | | | | X | | | | 9T8 |
| 9T9A | | | | | | | | | | | | | | | | | | 9T9A |
| 9T9B | | | | | | | | | | | | | | X | | | | 9T9B |
| 9T9C | | | | | | | | | | | | | | | | | | 9T9C |
| 9T9D | | | | | | | | | | | | | | | | | | 9T9D |
| 10A | | | | + | | | | | | | | | | | | | | 10A |
| 10B | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 10B |
| 10C | | + | | + | | | | | | | | | | | X | | | 10C |
| 10D | | | | | | | | | | | | | | | | X | | 10D |
| 10E | | | | | | | | | | | | | | | | X | | 10E |
| 10F | | | | | | | | | | | | | | | | | X | 10F |
| 11 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | O | O | X | 11 |
| 12A | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 12A |
| 12B | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | O | 12B |

X - Mandatory

+ - Either one or the other item(s)

+ - required in specific cases

O - optional

ADDENDUM 1
(to Appendix S4)

| Type of notice | To be used for: | Notification | Plan update |
|-----------------------|---|---------------------|------------------------------|
| AP1/A1 | Transmitting terrestrial station (except LF/MF and VHF/UHF broadcasting and typical station) | AR12 | GE85MM GE85EMA |
| AP1/B | Receiving land station | AR12 | (GE85MM) |
| AP1/C | Typical station above 28 MHz | AR12 | - |
| AP1/A2 | LF/MF broadcasting station in Regions 1 and 3 | AR12 | GE75 |
| AP1/A4 | VHF/UHF broadcasting station (except FM broadcasting in Region 1 and AFG and IRN in the band 87.5 - 108 MHz and TV stations in African Broadcasting Area and Gulf Area) | AR12 | ST61 |
| AP1/A5 | VHF sound broadcasting station in the band 87.5 - 108 MHz in Region 1 and Gulf Area | AR12 | GE84 |
| AP1/A6 | VHF/UHF television broadcasting station in the African Broadcasting Area and in the Gulf Area | AR12 | GE89 |
| AP1/A7 | MF broadcasting station in Region 2 | AR12 | RJ81 |
| AP2 | HF broadcasting station in exclusive bands | - | AR17 |
| AP5 | Allotment for coast radiotelephone station | - | AP25(AR16) |
| AP1/A1 | Coast station in International NAVTEX System | - | AR14A (See also Res. 329) |

ADDENDUM 2

(to Appendix S4)

Symbols designating classes of station

| Class of station | Definition | Class of station | Definition |
|------------------|--|------------------|--|
| LR | Aeronautical radionavigation land station | LR | Radiolocation land station |
| MA | Aeronautical radionavigation mobile station | MA | Aircraft station |
| ML | Aeronautical fixed station | ML | Land mobile station |
| MO | Broadcasting station, sound | MO | Mobile station |
| MS | Broadcasting station, television | MS | Ship station |
| NL | Aeronautical station | NL | Maritime radionavigation land station |
| OD | Base station | OD | Oceanographic data station |
| OE | Coast station | OE | Oceanographic data interrogation station |
| SA | Aeronautical station in the aeronautical mobile (R) service | SA | Meteorological aids mobile station |
| SM | Aeronautical station in the aeronautical mobile (OR) service | SM | Meteorological aids land station |
| SS | Port station | SS | Standard frequency and time signal station |
| | Fixed station | | |

ANNEX 2A
(to Appendix S4)

Characteristics of satellite networks or earth or radioastronomy stations¹

A. General characteristics to be provided for the satellite network or the earth or radioastronomy station

A.1 Identity of the satellite network or the earth or radioastronomy station

- a) Identity of a satellite network.
- b) Country and IFRB number (Regions 1 and 3); country and beam identification (Region 2).
- c) Country and beam identification.
- d) Country and identification of the allotment; for a network not derived from the Allotment Plan, the identity of the network.
- e) Identity of an earth or radioastronomy station:
 - 1) the type of earth station (specific or typical);
 - 2) the name by which the station is known or the name of the locality in which it is situated;
 - 3) for a specific earth station:
 - the country or geographical area in which the station is located;
 - the geographical coordinates of each transmitting and receiving antenna site comprising the earth station (longitude and latitude in degrees and minutes as well as the seconds with an accuracy of one-tenth of a minute; the

¹ **Note:** The Bureau shall develop and keep up-to-date forms of notice to meet fully the statutory provisions of this Appendix and related decisions of future conferences. A detailed description of items listed in this annex together with an explanation of the symbols is to be found in the Preface to the International Frequency List.

seconds need only be furnished if the coordination area of the earth station overlaps the territory of another administration).

4) for a radioastronomy station:

- the country or geographical area in which the station is located;
- the geographical coordinates of the station site (longitude and latitude in degrees and minutes).

f) Country symbol of the notifying administration.

A.2 Date of bringing into use

- a) The date (actual or foreseen, as appropriate) of bringing the frequency assignment (new or modified) into use;
- b) For the case of a space station aboard a geostationary satellite the period of validity of the frequency assignments (see Resolution 4 (Rev.Orb-88));
- c) The date (actual or foreseen, as appropriate) when reception of the frequency band either begins or when any of the basic characteristics are modified.

A.3 Operating administration or company

Symbols for the operating agency and for the address of the administration to which communication should be sent on urgent matters regarding interference, quality of emissions and questions referring to the technical operation of the network or station (see Article S15 of the Radio Regulations).

A.4 Orbital information

- a) For the case of a space station aboard a geostationary satellite:
 - 1) the nominal geographical longitude on the geostationary-satellite orbit;
 - 2) the planned longitudinal tolerance and the inclination excursion.

In the case where a geostationary space station is intended to communicate with an earth station:

- 3) the visibility arc (the arc of the geostationary-satellite orbit over which the space station is visible at a minimum angle of elevation of 10° at the Earth's surface from its associated earth stations or service areas);
 - 4) the service arc (the arc of the geostationary-satellite orbit within which the space station could provide the required service to its associated earth stations or service areas);
 - 5) in the event that the service arc is less than the visibility arc the reasons therefore.
- b) For the case of space station(s) aboard non-geostationary satellite(s):
- 1) the angle of inclination of the orbit;
 - 2) the period;
 - 3) the altitudes in kilometres of the apogee and perigee of the space station(s);
 - 4) and the number of satellites used.
- In addition, if the stations operate in a frequency band subject to the provisions of Resolution 46:
- 5) the right ascension of the ascending node;
 - 6) the argument of the perigee;
 - 7) the active service arc.
- c) For the case of an earth station the identity of the associated space station(s) with which communication is to be established as well as, in the case of a geostationary space station, its orbital position.

A.5 Coordination

The country symbol of any administration with which coordination has been successfully effected, as well as the country symbol of any administration with which coordination has been sought but not completed.

A.6 Agreements

- a) If appropriate, the country symbol of any administration with which agreement has been reached; including where the agreement is to exceed the limits prescribed in these Regulations.
- b) If appropriate, the country symbol of any administration with which agreement has been reached in accordance with Article S9 of these Regulations.

A.7 Earth station site characteristics

For a specific earth station:

- a) The horizon elevation angle in degrees for each azimuth around the earth station.
- b) The planned minimum angle of elevation of the antenna in the direction of maximum radiation in degrees from the horizontal plane.
- c) The planned range of operating azimuthal angles for the direction of maximum radiation in degrees, clockwise from True North.
- d) The altitude (metres) of the antenna above mean sea level.

A.8 The rain climatic zone(s)

A.9 Minimum angle of elevation in the service area in the case of Regions 1 and 3

A.10 Earth station coordination area diagrams

A.11 Regular hours of operation

B. Characteristics to be provided for each satellite antenna beam or each earth or radioastronomy station antenna

- B.1 The designation of the satellite antenna beam and, if appropriate, an indication as to whether it is a steerable or reconfigurable antenna beam.

B.2 Transmission/Reception indicator

B.3 Geostationary space station antenna characteristics

- a) Where it is intended to communicate with an earth station via an antenna pointing in a fixed direction:
 - 1) the maximum isotropic gain (dBi),
 - 2) the antenna gain contours plotted on a map of the Earth's surface, preferably in a radial projection from the satellite onto a plane perpendicular to the axis from the centre of the Earth to the satellite. The space station antenna gain contours shall be drawn as isolines of the isotropic gain, at least for -2, -4, -6, -10 and -20 dB and at 10 dB intervals thereafter, as necessary, relative to the maximum antenna gain, when any of these contours is located either totally or partially anywhere within the limit of visibility of the Earth from the given geostationary satellite. Whenever possible the gain contours of the space station receiving antenna should also be provided in the form of a numerical equation.
- b) Where a steerable beam (see No. 183) is used:
 - 1) the maximum isotropic antenna gain (dBi) if the effective boresight area (see No. 168A) is identical with the global or nearly global service area; the maximum antenna gain is applicable to all points on the Earth's visible surface;
 - 2) the maximum antenna gain and the effective antenna gain contours (see No. 168B) if the effective boresight area (see No. 168A) is less than the global or nearly global service area. These contours shall be provided as defined in a) above.
- c) Include, in the antenna gain contours of a) 2) and b) 2) above, the effect of the planned longitudinal tolerance, inclination excursion and pointing accuracy of the antenna.
- d) The pointing accuracy of the antenna.
- e) The antenna radiation pattern where the antenna radiation beam is directed towards another satellite.
- f) The gain of the antenna in the direction of those parts of the geostationary-satellite orbit which are not obstructed by the Earth, in the case of operation in a band allocated in the Earth-to-space direction and in the space-to-Earth direction;
- g) For the case of a space station submitted in accordance with Appendix S30, Appendix S30A or Appendix S30B:
 - 1) maximum isotropic antenna gain (dBi);

- 2) shape of the beam (elliptical, circular, or other);
- 3) for circular beams:
 - half-power beamwidth in degrees;
 - co-polar and cross-polar radiation patterns;
 - nominal intersection of the antenna beam axis with the Earth (boresight longitude and latitude);
- 4) for elliptical beams:
 - co-polar and cross-polar radiation patterns;
 - rotational accuracy in degrees;
 - major axis orientation in degrees anticlockwise from the Equator;
 - major axis beamwidth (degrees) at the half-power points;
 - minor axis beamwidth (degrees) at the half-power points;
 - nominal intersection of the antenna beam axis with the Earth (boresight longitude and latitude);
- 5) for beams of other than circular or elliptical shape:
 - co-polar and cross-polar gain contours plotted on a map of the Earth's surface;
- 6) ΔG (difference between the maximum gain and the gain in the direction of the point in the service area at which the power-flux density is at a minimum - for Regions 1 and 3 only).

B.4 Non-geostationary space station antenna characteristics

The isotropic gain of the antenna in the direction of maximum radiation (dBi) and the antenna radiation pattern.

B.5 Earth station antenna characteristics

- a) The isotropic gain (dBi) of the antenna in the direction of maximum radiation (see No. 154).
- b) The beamwidth in degrees between the half power points.
- c) Either the measured radiation diagram of the antenna or the reference radiation diagram to be used for coordination.

B.6 Radioastronomy station antenna characteristics

The antenna type and dimensions, effective area and angular coverage in azimuth and elevation.

C. Characteristics to be provided for each group of frequency assignments for a satellite antenna beam or an earth or radioastronomy station antenna

C.1 Frequency range

The frequency range within which the carriers will be located for each Earth-to-space or space-to-Earth service area or for each space-to-space relay.

C.2 Assigned frequency (frequencies)

- a) The assigned frequency (frequencies), as defined in No. 142.

If the basic characteristics are identical, with the exception of the assigned frequency, a list of frequency assignments can be provided.

- b) The centre of the frequency band observed.

C.3 Assigned frequency band

- a) The bandwidth of the assigned frequency band in kHz (see No. 144).
- b) The bandwidth of the frequency band in kHz observed by the station.

C.4 Class of station(s) and nature of service

The class of station and nature of service performed.

C.5 Receiving system noise temperature

- a) For the case of a space station the total receiving system noise temperature in kelvins, referred to the output of the receiving antenna of the space station.
- b) For the case of an earth station the lowest total receiving system noise temperature in kelvins, referred to the output of the receiving antenna of the earth station under clear sky conditions.
- c) For the case of a radioastronomy station, the overall receiving system noise temperature in kelvins, referred to the output of the receiving antenna.

C.6 Polarization

- The type of polarization and, if appropriate, sense of polarization of the antenna.
- Indication as to whether consent is given to the general use of this information in determining the need for coordination with other satellite networks according to Appendix S8 of the Radio Regulations.

C.7 Class of emission, necessary bandwidth and description of the transmission

In accordance with Article S2 and Appendix S1 of the Radio Regulations:

- a) the class of emission and the necessary bandwidth;
- b) the carrier frequency or frequencies of the emission(s);
- c) for each carrier the class of emission, necessary bandwidth and description of transmission;
- d) for the carrier having the smallest bandwidth of the assignments in the system, the class of emission, necessary bandwidth and a description of the transmission.

C.8 Power characteristics of the transmission

- a) The peak envelope power (dBW) supplied to the input of the antenna for each carrier having a separate class of emission.
- b) The total peak envelope power (dBW) and the maximum power density (dB(W/Hz))¹ supplied to the input of the antenna averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz.
- c) the minimum value of the peak envelope power supplied to the input of the antenna for each carrier.
- d) The maximum total peak envelope power (dBW) supplied to the input of the antenna for each contiguous satellite bandwidth and this bandwidth. For a satellite transponder, this corresponds to the maximum saturated peak envelope power and the bandwidth of each transponder.
- e) The maximum power density (dB(W/Hz))¹ supplied to the input of the antenna, for each carrier type, averaged over the worst 4 kHz band for carriers below 15 GHz, or averaged over the worst 1 MHz band for carriers above 15 GHz.
- f) Nominal equivalent isotropically radiated power(s) (e.i.r.p.) on the beam axis.
- g) The maximum aggregate power (dBW) of all carriers (per transponder, if applicable) supplied to the input of the antenna and their aggregate bandwidth. If this corresponds to the bandwidth of a transponder, so indicate.
- h) For the case of a space station submitted in accordance with Appendix S30:
 - the power supplied to the antenna (dBW) (Regions 1 and 3);
 - the power supplied to the antenna (dBW) and the maximum power density per Hz (dB(W/Hz)), averaged over the worst 5 MHz, 40 kHz and 4 kHz, supplied to the antenna (Region 2).
- i) For the case of a space station submitted in accordance with Appendix S30A (for each transmitting earth station and for each assigned frequency):
 - total transmitting power (dBW) in the assigned frequency band supplied to the input of the antenna;

¹ The most recent version of ITU-R Report 792 should be used to the extent applicable in calculating the maximum power density per Hz.

- for the band 17.3 - 18.1 GHz, the maximum power density per Hz (dB(W/Hz)) supplied to the input of the antenna averaged over the worst 1 MHz band;
 - for the band 14.5 - 14.8 GHz, the maximum power density per Hz (dB(W/Hz)) supplied to the input of the antenna averaged over the worst 4 kHz band;
 - for the band 17.3 - 17.8 GHz, the maximum power density per Hz (dB(W/Hz)) supplied to the input of the antenna averaged over the total RF bandwidth (24 MHz for Region 2 or 27 MHz for Regions 1 and 3).
 - range of automatic gain control, expressed in dB, above the transmitting power indicated above (if power control is used).
- j) In the case of a space station or an earth station submitted in accordance with Appendix S30B:
- the maximum value of power density, in dB(W/Hz), averaged over the necessary bandwidth of the modulated carrier, supplied to the input of the antenna;
 - the frequency below which signals whose peak-to-average ratio is less than 5 dB will be located.

C.9 Information on modulation characteristics

- a) For each carrier, according to the nature of the signal modulating the carrier and the type of modulation:
- 1) in the case of a carrier frequency modulated by a frequency-division multichannel telephony baseband (FDM/FM) or by a signal that can be represented by a multichannel telephony baseband: the lowest and highest frequencies of the baseband and the r.m.s. frequency deviation of the test tone as a function of baseband frequency;
 - 2) in the case of a carrier frequency modulated by a television signal: the standard of the television signal (including, where appropriate, the standard used for colour), the frequency deviation for the reference frequency of the pre-emphasis characteristic and the pre-emphasis characteristic itself as well as, where applicable, the characteristics of the multiplexing of the video signal with the sound signal(s) or other signals;
 - 3) in the case of a carrier phase-shift modulated by a digital signal: the bit rate and the number of phases;
 - 4) in the case of an amplitude modulated carrier (including single sideband): as precisely as possible the nature of the modulating signal and the kind of amplitude modulation used;
 - 5) for all other types of modulation: such particulars as may be useful for an interference study;

- 6) for any type of modulation, as applicable: the characteristics of energy dispersal, such as the peak-to-peak frequency deviation (MHz) and the sweep frequency (kHz) of the energy dispersal waveform.
- b) For the case of a space station submitted in accordance with Appendix S30 or the case of a space station submitted in accordance with Appendix S30A (for each transmitting earth station and for each assigned frequency):
 - 1) type of modulation;
 - 2) pre-emphasis characteristics;
 - 3) TV standard;
 - 4) sound-broadcasting characteristics;
 - 5) frequency deviation;
 - 6) composition of the baseband;
 - 7) type of multiplexing of the video and sound signals;
 - 8) energy dispersal characteristics.

C.10 Type and identity of the associated station(s)

The associated station may be another space station, a typical earth station of the network or a specific earth station.

- a) For an associated space station, its identity.
- b) For a specific associated earth station, the identity of the earth station and the geographical coordinates of the antenna site.
- c) For an associated earth station (whether specific or typical):
 - 1) the class of station(s) and nature of service performed;
 - 2) the isotropic gain (dBi) of the antenna in the direction of maximum radiation (see No. 154);
 - 3) the beamwidth in degrees between the half power points (describe in detail if not symmetrical);

- 4) either the measured radiation diagram of the antenna or the reference radiation diagram;
- 5) the lowest total receiving system noise temperature in kelvins referred to the output of the receiving antenna of the earth station under clear sky conditions when the associated station is a receiving earth station;
- 6) the antenna diameter (metres).

C.11 Service area

- a) The service area or areas of the satellite beam on the Earth when the associated transmitting or receiving stations are earth stations.
- b) For the case of a space station submitted in accordance with Appendix S30A:
 - where the feeder-link earth station is in Region 2, the geographical coordinates of the feeder-link station in the frequency band 17.7 - 17.8 GHz;
 - in all other cases, the feeder-link service area identified by a set of a maximum of ten feeder-link test points, including the rain-climatic zone for each test point.

C.12 Required protection ratio

The minimum acceptable aggregate carrier-to-interference ratio, if less than 26 dB.

C.13 Class of observations

The class of observations to be taken on the frequency band shown in item C.3.b. Class A observations are those in which the sensitivity of the equipment is not a primary factor. Class B observations are those of such a nature that they can be made only with advanced low-noise receivers using the best techniques.

D. Overall link characteristics

To be provided only when simple frequency-changing transponders are used on the space station aboard a geostationary satellite.

D.1 Connection between Earth-to-space and space-to-Earth frequencies in the network

The connection between uplink and downlink frequency assignments in each transponder for each intended combination of receiving and transmitting beams.